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## New and little known African *Rhegmoclema* (Diptera, Scatopsidae)

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*Rhegmoclema laurentii* n. sp. (Tanzania) and the so far unknown male of *Rh. trisetosum* Cook (Zaire, Uganda) are described and figured. Alar secondary sexual characters are reported for this species and *Rh. longispinum* Cook (Zaire).

### INTRODUCTION

Among material collected during trekking trips in mountainous ranges of East Africa by Laurent DUCOMMUN (Tanzania: Kilimanjaro) and Christian LENGELER (Uganda: Ruwenzori) I discovered some specimens of Scatopsidae belonging to the genus *Rhegmoclema*. According to COOK (1980), 12 species of this genus are presently known from the Afrotropical region. Two species are represented in this material: one of which is new to science while the other was known up to now by females only. Both are described below.

### DESCRIPTIONS

#### *Rhegmoclema laurentii* n. sp. (figs. 1–6)

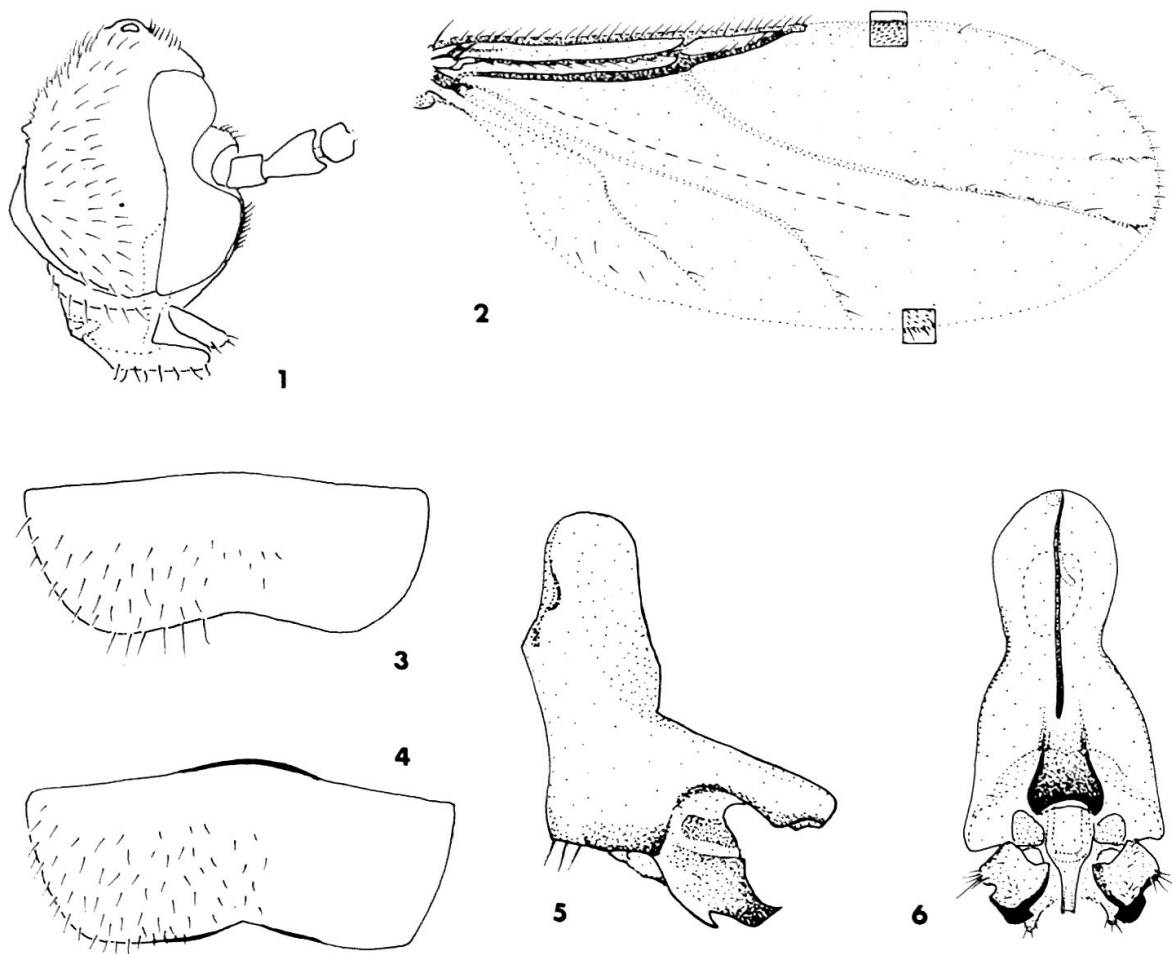
*Type locality*: Tanzania, Kilimanjaro: between Marangu and Mandura Hut.

*Type material*: Holotype ♂ labelled: "Tanzania: flanc SE du Kilimanjaro, entre Marangu Gate et Mandura Hut, 2300 m, 10.X.1983, Laurent DUCOMMUN leg."/"forêt claire, sur fleur jaune"/"S 3991"/"*Rhegmoclema laurentii* ♂ J.-P. HAENNI 1988"/"Holotype ♂" (red label). Holotype mounted on microscopic slide in author's collection, Musée d'histoire naturelle de Neuchâtel, Switzerland.

#### *Diagnosis*

*Rh. laurentii* is easily distinguishable from the other Afrotropical *Rhegmoclema* (except *phaconeura* SPEISER) by the vein  $m_1$  which is broadly interrupted at base (fig. 2), and by genital characters, especially the strongly projecting dorsal process (fig. 5). It appears to differ from *phaconeura* by the lighter body coloration and the infuscated wings.

*Male*: 1.5 mm long. Brownish with pleurae reddish brown; legs brownish except hind legs which are reddish brown; wings light brownish, halteres brown.



Figs. 1–6. *Rhegmoclema laurentii* n. sp. (Holotype ♂). 1. Head. – 2. Wing. – 3. Tergum 7. – 4. Sternum 7. – 5. Genital capsule (side view). – 6. Genital capsule (dorsal view).

**Head:** (fig. 1) antennae elongate, about 1.5 as long as head height, with 10 flagellar segments; segment 1 longer than broad, 2 to 9 broader than long, 10 somewhat longer than 8 and 9 together; palpi shorter than labellae.

**Thorax:** 1.5 time as long as broad, with a dense pilosity except on pleurae; 1 pair of well-developed prescutellar postalar setae; 4–5 supraalar setae; spiracular sclerite twice as long as broad, with anteriorly located relatively small spiracle; scutellum with 1 pair of strong apical and 1 pair of somewhat weaker subapical setae.

**Wings:** (fig. 2) 1.3 mm long covered with a dense micropilosity; presence of macrochetae on all veins except basal section of *m*; *m*<sub>1</sub> developed only in apical section; *m*<sub>2</sub> directed anteriorly at the apex; anterior veins brown, posterior thin, brownish, hardly darker than membrane but well visible; wing measurements: *c*<sub>1</sub>/*c*<sub>2</sub>/*c*<sub>3</sub> (costal sections) = 2.4/1/3.1; *c*<sub>1</sub> + *c*<sub>2</sub>/*wl* (radial sector/wing length) = 1/1.9.

**Legs:** *f*<sub>1</sub> ventrally with an irregular double row of rather short spines in basal half before middle; *t*<sub>1</sub> clavate from basal quarter, the clavate part bearing several irregular rows of short blunt spines extending nearly to the apex; legs otherwise as usual, with combs of setae at the apex of tibiae.

**Abdomen:** tergum 1 entirely covered with dense microtrichia figuring a reticulate polygonal pattern; this pattern is slightly modified in a narrow area at

the anterior corners where microtrichia are somewhat enlarged and arranged in irregular short rows or small groups; all other terga with the same reticulate pattern; tergum 7 (fig. 3) slightly concave posteriorly, bordered with a row of somewhat spiny, elongate setae and provided with an internal right-angled fold. Sternum 1 narrow but well visible; sternum 7 (fig. 4) slightly concave at posterior margin.

*Genitalia:* (figs. 5–6) genital capsule elongate, with a very distinctive dorsal projection and apically strongly sclerotized processes whose homology remains unclear.

*Female:* unknown.

*Ecology:* unknown. The unique known specimen was collected in a flower in an area of light forest.

*Distribution:* known only from type locality on SE slope of Mount Kilimanjaro, Tanzania, at about 2300 m altitude.

*Etymology:* this new species is named in honour of its discoverer, my dear friend Mr. Laurent DUCOMMUN, distinguished geologist and naturalist.

#### *Remark*

According to its genital structure *Rh. laurentii* occupies a rather isolated position among the Afrotropical species of the genus. The peculiar venation resembles that of *Aldrovandiella phaconeura* SPEISER, 1920, which is evidently a *Rhegmoclema*. The latter was described from a single female from Kilimanjaro. Unfortunately the unique type is lost; the Speiser collection was entirely destroyed in World War II during the burning down of Königsberg (letter of 21st september 1944 from Paul SPEISER to Hans SACHTLEBEN of the Deutsches Entomologisches Institut in Berlin [SCHMITZ, 1957; MORGE, 1974; MÜLLER, in litt.]).

The synonymy of the two forms, though very unlikely (colour of body and wing), cannot be totally excluded. The original description of *phaconeura* is lacunary and does not allow recognition at present; the strongly inflated basal section of m in wing would probably permit it with further material available. Accordingly it appears preferable to describe a new species for this unique male. It is the fourth species of the genus recorded from the Kilimanjaro area.

#### *Rhegmoclema longispinum* COOK (fig. 7)

*Rhegmoclema longispinum* COOK, 1962: *Rev. Zool. Bot. Afr.* 65: 58, figs. 10–12.

*Material examined:* Zaïre: holotype ♂ and allotype ♀: “P.N.A. gîte Nyiragongo, 2300 m.—1933, Dr DE WULF, Musée du Congo” (Kivu), (slide mounted by Cook, in collection of Musée Royal de l’Afrique Centrale, Tervuren, Belgium).

#### *Complementary description*

*Male. Wings:* posterior veins brown, as broad as anterior ones;  $c_1/c_2/c_3 = 1.3/1/1.6$ ;  $m/m_1 = 1/1.8$ ;  $c_1 + c_2/wl = 1/1.6$ . COOK’s (op. cit.) indication “third section of costal margin of 2 times as long as second” is wrong. It is only 1.6 times as long as second in holotype and radial sector reaches costa well beyond middle of wing.

*Female. Wings:* as mentioned for *Rh. trisetosum*, figure 12 of COOK (op. cit.) is not correct: in allotype,  $m_1$  is interrupted at base, as mentioned in the original

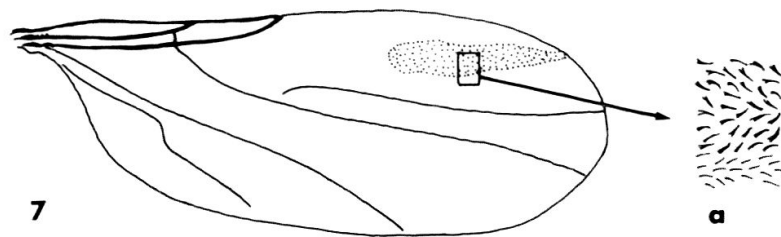


Fig. 7. *Rhegmoclema longispinum* COOK. (Allotype ♀). Wing (diagrammatic view) showing modified area on membrane (stippled) and detail of structure (a).

description. Posterior veins brown, broader than anterior ones;  $c_1/c_2/c_3 = 2.1/1/3.8$ ;  $m/m_1 = 1/3.4$ ;  $c_1+c_2/wl = 1/2.2$ . Unlike in the male,  $r_s$  does not reach middle of wing. Furthermore there is a modified area in female wing membrane (fig. 7), appearing cloudy at low magnification; this is due to the different structure of microtrichia, as can be seen at high magnification: these are thickened at base, curved, more or less erect and arranged more irregularly than in rest of wing.

#### *Rhegmoclema trisetosum* COOK (figs. 8–13)

*Rhegmoclema trisetosum* COOK, 1962: *Rev. Zool. Bot. Afr.* 65: 56, figs. 13–15, ♀.

**Material examined:** Zaïre: Holotype ♀: “Congo: Kivu, Mont Muhi, Itombwe, N. riv. Isale, 3000 m. G. MARLIER (I.R.S.A.C.), juillet 1955”. Paratype ♀: “Congo: Kivu, sommet Mont Muhi, 3390 m, G. MARLIER (I.R.S.A.C.), juillet 1955”. (These 2 types specimens are slide mounted in collection of Musée Royal de l’Afrique Centrale, Tervuren, Belgium.)

Uganda: Ruwenzori: Bujuku, 4000 m, 29.–31.XII.1983, C. LENGELER, 2 ♂♂ 1 ♀ (S 3988–3990), (slide mounted in author’s collection, Musée d’histoire naturelle, Neuchâtel, Switzerland). New for Uganda.

#### *Diagnosis*

Male genital structures show a close relationship to *Rh. leleupi* COOK (Mt Meru, Tanzania) and *Rh. longispinum* COOK (Mt Nyiragongo, Kivu, Zaïre); *Rh. trisetosum* can be separated from these species by shape of penis valves and posterior projections of segment 9 (figs. 12–13); female sex has a very distinctive swelling of basal section of  $r$  (fig. 8).

**Description** of the so far unknown male: 2.1 mm long. Brownish-black, shining except for the abdomen which is dorsally dull, velvety looking; pleurae brownish; head black; legs brownish black with a median ring on  $f_3$ , apical part of  $t_3$  and hind tarsi lighter brown. Whole body and legs except pleurae covered with a short dense reddish pilosity. Wings slightly but evidently tinged with brown; halteres blackish-grey with pedicel lighter.

**Head:** Antennae with 10 flagellar segments, segment 1 as long as broad, 2 to 9 broader than long, 10 nearly as long as 8 and 9 together; palpi small.

**Thorax:** setae as follows: 2–5 supraalar, 1 postalar, 1 pair of apical and 2 pairs of marginal scutellar.

**Wings:** 2.0 mm long; setae on all veins except basal section of  $m$  and on membrane behind  $r_s$ ; costal cell dark brown, contrasting with rest of wing;

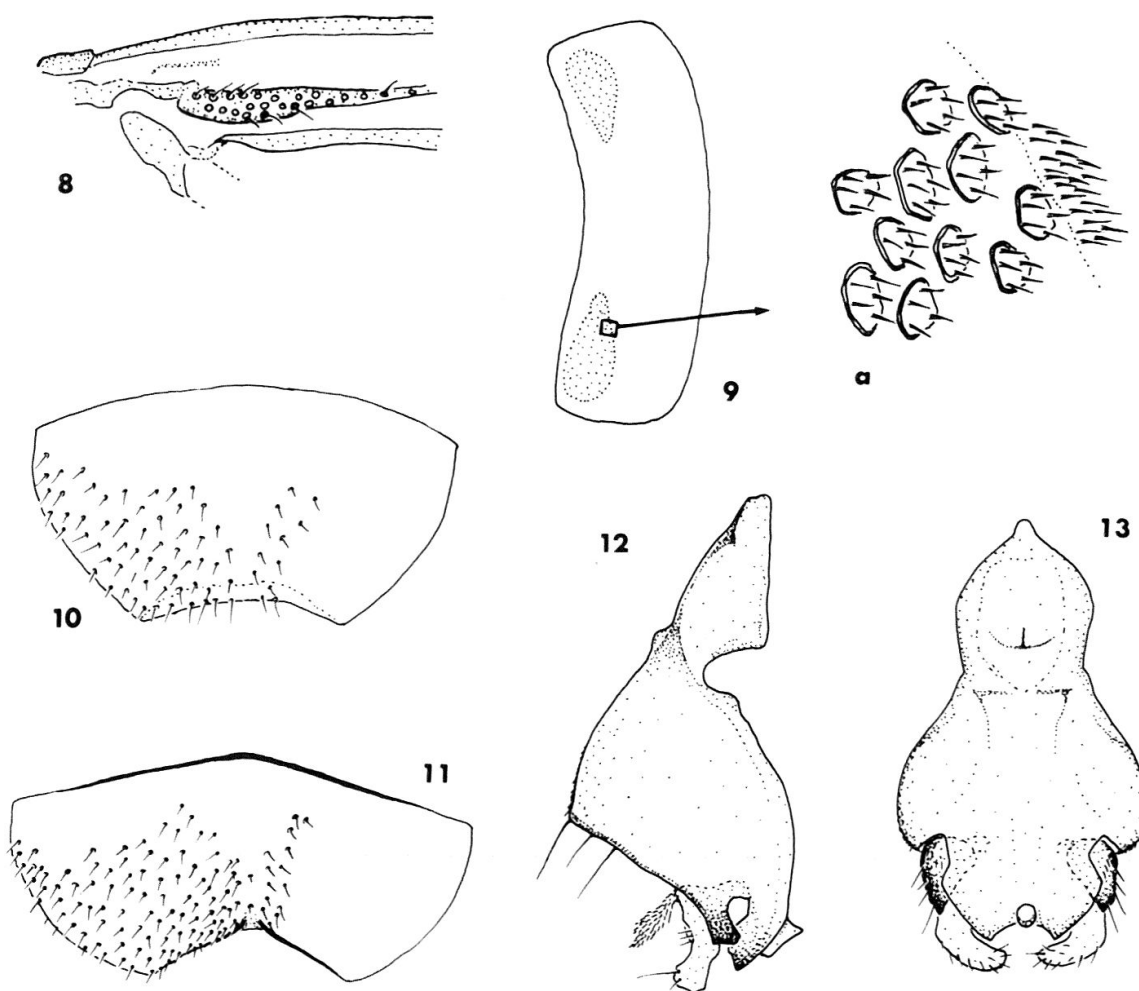
anterior veins thickened, brown, posterior veins brownish, hardly darker than membrane;  $c_1/c_2/c_3 = 1.8/1/2.7-3$ ;  $m/m_1 = 1/3.5-4.2$ ;  $c_1+c_2/wl = 1/1.9-2$ .

*Halteres*: with pedicel devoid of setae.

*Legs*: as usual in genus; tibiae with an apical comb of setae; tarsi beneath with somewhat spiny setae, claws elongate.

*Abdomen*: all tergites densely covered with microtrichia; these are arranged in a polygonal reticulate pattern which is very obvious on tergite 1, less apparent on tergite 2, and present only as faint traces on following tergites; first tergite bearing on each side at anterior corner a well differentiated zone (fig. 9) where microtrichia are disposed by 5 or 6 on the elevated edge of roughly annular or ovate structures that are arranged in very irregular rows; tergum 7 (fig. 10) with a shallow posterior emargination; sternum 7 (fig. 11) with a triangular posterior emargination.

*Genitalia*: (figs. 12–13) figuring a rather short capsule with strongly sclerotized penis valves and hook-like postero-dorsal projections.



Figs. 8–13. *Rhegmoclema trisetosum* Cook. 8. Wing base of ♀ showing swelling of basal section of r. – 9. Tergum 1 of ♂ (diagrammatic view) showing modified area (stippled) and detail of structure (a). – 10. Tergum 7 of ♂. – 11. Sternum 7 of ♂. – 12. Genital capsule of ♂ (side view). – 13. Genital capsule of ♂ (dorsal view).

*Female*: the description by COOK (1962) is adequate except for the wing. There is probably a confusion in the above cited paper in figures of wings of *trisetosum* and *longispinum*. In the original description (op. cit. p. 56) *trisetosum* is said to have "M1 complete basally" but the fig. 15 shows clearly an interruption. Comparison with the type has proved that the original description is correct while the figure is inadequate. Wing measurements:  $c_1/c_2/c_3 = 1.5-1.9/1/2.4-3$ ;  $m/m_1 = 1/3.4-4$ ;  $c_1+c_2/wl = 1/1.9$ . Basal section of r strongly inflated, bearing 3 rows of setae which are inserted in enlarged sockets (fig. 8). This important feature of the female wing was apparently overlooked by COOK (1962).

#### Remark

A rather similar swelling is present in *phaconeura* where it affects the basal section of m (SPEISER, 1920). A "spindle-shaped enlargement" of base of m before r-m is also present in females of 5 Australian species of *Rhegmoclema* (COOK, 1971).

Also among Afrotropical species, secondary sexual characters appear to be fairly frequent. Apart from the swelling of sections of veins and the modification of structure of microtrichia in membrane, the length of the radial sector can be different according to the sex, shorter than half of wing length in female, equal or longer in male.

#### ACKNOWLEDGMENTS

I am very happy to thank my friends Laurent DUCOMMUN (Neuchâtel) and Christian LENGELER (Neuchâtel, now in Nairobi) for having collected and put at my disposal this interesting material. My thanks are also dedicated to Dr Eliane DE CONNINCK, Musée Royal de l'Afrique Centrale (Tervuren, Belgium) for loan of type specimens of African *Rhegmoclema*, and Dr Adrian PONT, British Museum (Natural History) (London, U. K.), and Prof. Dr H. J. MÜLLER, Institut für Pflanzenschutzforschung Kleinmachnow (Eberswalde-Finow, G.D.R.) for their kind help concerning the Speiser collection.

#### RÉSUMÉ

*Rhegmoclema africains nouveaux ou peu connus (Diptera, Scatopsidae)*. – *Rhegmoclema laurentii* n. sp. (Tanzanie) et le mâle encore inconnu de *Rh. trisetosum* COOK (Zaïre, Ouganda) sont décrits et figurés. Des caractères sexuels secondaires alaires sont signalés pour cette espèce et pour *Rh. longispinum* COOK (Zaïre).

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